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ABSTRACT

In a tone language, tonal distinctions between words in sequence can often be analyzed using the same devices that are applied within the word (e.g., downdrift or downstep). However, it is proposed here that Sandawe is a tone language in which the tonal relationships between constituents in clause structure, and between constituents in phrase structure, have a particular function and, sometimes, a form that differs from that seen within a word. Both constructed clauses and clauses from recorded oral texts are used first to explain and illustrate patterns of tone within words and in the noun phrase, associative constructions, the basic clause, marked constituents, the narrative clause, the copular clause, the irrealis clause, and a class of clauses with one particular suffix. A study of similar phenomena in Nama is also used for comparison. A brief bibliography is included. (MSE)

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CLAUSE STRUCTURE AND TONE IN SANDAWE

Edward D. Elderkin

1 Introduction

The use of tone within words is well documented. Tonal distinctions between words in sequence can often be analysed using the same devices as are applied within the word, for example downdrift or downstep. Sandawe[1], however, is a language in which the tonal relationships between constituents in clause structure, and between constituents in phrase structure, have a particular function, and sometimes a form which differs from that seen within a word. It is the intention of this paper to state in outline this phenomenon and some of its uses. Both constructed clauses and clauses from recorded oral texts are used to do this.

[1]Sandawe is a Khoisan language spoken in central Tanzania. The languages to which it seems most closely related are those of the Central Khoisan group, of which Nama is the best known. Sandawe has been previously documented in several major works, for example, Dempwolff 1916, van de Kimmenade 1954 and the works of ten Raa (especially ten Raa 1967). My helper in investigating the Sandawe language was Nd Augustine Mathias, formerly of Mangastaa, to whom I record my thanks.

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2 Tone within words

The word, as used here, is a phonological unit defined by its phonetic realisation; it is not necessarily isomorphic with any syntactic unit. For example, the word in (1a) contains two morphemes, the second of which, sà, has its origin within the NP dominated by S, that is, within the subject; the morpheme dzìgídà does not belong to the constituent which is the subject of the clause.[2]

This paper does not provide a detailed syntactic analysis, but indicates the minimum syntactic analysis needed to appreciate the use of tone.

Sandawe has long and short vowels. In order to describe this, and the tone patterns which are seen in words, it is expedient to use the mora as the unit which both accounts for length (three to a long vowel and two to a short vowel) and chooses one of the two tones (high ´ or low `). There is downdrift between highs separated by one or more low moræ within one word. Downstep has been found between a syllable final high mora and a following syllable beginning with either a low toned mora or a high toned mora. Otherwise high tones within one word and without any intervening low tone maintain the same pitch level. The examples in (1) show these phenomena and the usual realisation of low tones in relation to a high. It will be noted that low tone on a syllable immediately following a high is phonetically raised, starting just below the end point of the preceding

[2]The transcription which is used below is based on the principles of the IPA, with the following variations.

Voiceless unaspirated consonants are all given a subscript $_{o}$; this doubly distinguishes them from the voiceless aspirated series which is shown by a following ^{h}. I follow Beach 1938 in combining the three IPA symbols for clicks, ʇ, ǂ and ʖ, with the subscript tilde to indicate a click articulated with simultaneous voiced nasality: ʇ̃, ǂ̃ and ʖ̃. A full chart of those consonants well established in the language follows.

[2](cont.)

	clicks					nonclicks			
fricative				f		s	l	x	h
glottalised	ᶜ?	ᵷ?	ᵬ?			t͡s?	t͡l?	ᵏ?	?
aspirated	ᶜʰ	ᵷʰ	ᵬʰ	ᵖʰ	ᵗʰ	t͡sʰ		ᵏʰ	
voiceless	c̥	ɟ̥	ɓ̥	p̥	t̥	t͡s̥	t͡l̥	k̥	
voiced	ɕ	ʒ	ɓ	b	d	d͡z	d͡l	g	
nasal	ɕ̃	ʒ̃	ɓ̃	m	n				
sonorant				w	r	j	l		

The symbol ᵚ indicates labiovelarisation of the initial part of a syllable.

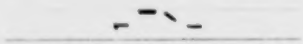
Small superscript symbols for nasals indicate a syllable final nasal element; in loan words, they, and the following homorganic consonant, often represent prenasalised units in the source language.

There are five vowels. Length is noted by a following :. Some vowels are voiceless and are written with a subscript ̥; in pitch diagrams, their presence is noted by the quaver rest symbol. After ?, the quality of a voiceless vowel is identical to that of the preceding vowel; here the vowel quality symbol is omitted, but the voicelessness and the tone are noted.

Tone marking follows the Africanist tradition: high ´, low `. The tone on the first mora of a syllable is noted; the tone on subsequent morae is only noted where it is different from that on the first.

high, and then falling; otherwise, syllables with all low moræ are phonetically level, but lower following a high than preceding it.

(1a) Normal realisations of low



dzìgídàsà
dzìgídà sà
heart 3fSg
she . . . heart

(1b) Downstepped low

ʔ ã ꜜnà
ʔ ã kì nà
above to
to above

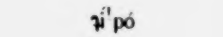
(1c) Maintenance of High tones

sóᵐbá
fish

(1d) Downdrift

tsʔámàsú
giraffe

(1e) Downstepped high



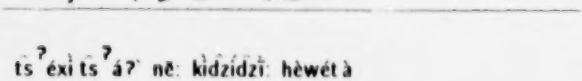
come	NEG	2Sg	

you didn't come

3 The noun phrase

In the structure of the noun phrase, sequences of coordinate words are characterised by the maintenance of the pitch of the first high tones in successive words. In (2a) kìdzídzì: and hèwé are coordinate within the same NP; downdrift does not operate to lower the pitch on wé and the position of the word break is marked phonetically as the low tone on hè takes its pitch in relation to that of wé, and not in relation to the dzí of the second syllable of the preceding word. Similarly the three words hā wì lá? mū: kʰuⁿdésè: in (2b), have highs in the NP which share the same pitch level.

(2a)



one	LOC	3Pl	stay		the village	this	LOC

they lived together in this village

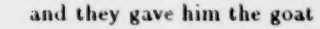
(2b)

hā ẇ lá? mū k^{h}ú^{n}dèsè gà? ń é
° °

hā ẇ lá? mū k^{h}ú^{n}dèsè: ?à ń é
° °

that goat who butted 3Pl give him
and they gave him the goat which butted (the chicken)

Where downdrift operates within one of the coordinate words, it is the pitch level of the first high tone in this word that is shown by the first high tone in a following coordinate word. This is demonstrated by example (3).

(3) 

ts$^{?}$ámàsú tê
°

ts$^{?}$ámàsú té è
°

giraffe another 3mSg
another giraffe

Although the evidence above suggests the generalisation that coordinate words within one NP have their high tones on the same pitch level, a small number of cases has been found where the head of an NP, preceded by a modifier, has a lower pitch than the modifier. An example is given in (4). Within the context of present-day Sandawe, this has to be considered exceptional, that is to say, I do not yet know what is the conditioning factor.

(4)

ts^{h}ẽ: lé:bà
ts^{h}ẽ: lé:bà
be absent specific Leeba
the late Leeba

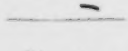
4 The associative construction

The associative construction is a constituent which functions as an NP. It has as its own constituents two NPs which are not coordinate; the second NP is the head. The meaning of the whole is often best translated as indicating possession. The second NP, the head, is realised with its first high tone lower than that of the first high tone in the first NP.

(5)

sá^{n}dá só^{m}bá
Sanda's fish

The pitch interval is that of downstep, as can be seen by comparing (5) and (1e). But where the second word has only low tones, its first syllable has a downward glide, which is different from the realisation of a downstepped low; compare (6) and (1b).

(6) 

tsi bè
my son

It would be possible to suggest that downstep between such words has a different realisation to that of downstep within a word, but the situation in clause structure suggests that another analysis is needed.

5 The basic clause

There are several types of clause structure. The one which is taken in the following examples is the basic clause structure. The basic clause structure is characterised by the presence of one morpheme from a series of morphemes which agree with the subject and may be suffixed to any constituent of the clause except the subject, or by the presence of the nominative morpheme -á: , suffixed to the subject; both may occur. A constituent to which one of these morphemes is suffixed is here called a marked constituent. Within one clause any number of marked constituents can in principle occur, but if the verb is marked, no other constituent may be marked. In the basic clause, the declarative marker gâ may appear in the marked constituent, immediately preceding the nominative morpheme or the subject pgn morpheme.

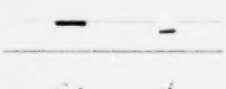
The morphemes which agree with the subject are referred to as pgn morphemes; pgn is an abbreviation for person, gender and number. This series of pgn morphemes I refer to as the subject pgn morpheme; they are listed in (7).

(7) Subject pgn morphemes

1Sg	sì
2Sg	ì
3mSg	à
3fSg	sà
1Pl	ò
2Pl	è
3Pl	ʔà

When the nominative morpheme -á: is used, the following constituent has a lower pitch, whether it is the verb, as in (8), or another NP, as in (9).

(8)



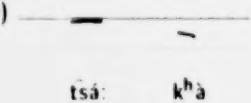
tsá: ʔí
tsí á: ʔí
1Sg NOM come
I came

(9)

tsá: sóᵐbá tʰí:mé
tsí á: sóᵐbá tʰí:mé
1Sg NOM fish cook it
I cooked the fish

In the example in (10), the word following the constituent with -á: is low toned; there is the same fall as has been illustrated with the associative construction in (6).

(10)

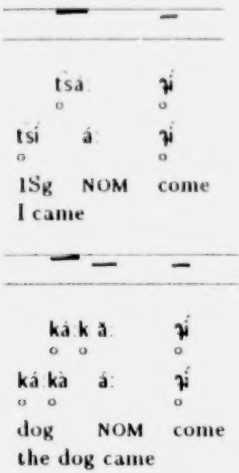


tsá: kʰà
tsí á: kʰà
1Sg NOM return
I came back

There are three problems associated with the idea of relating this lowering of tones to a downstep. The first has already been

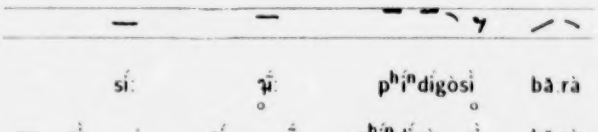
exemplified in the difference between (1b) and (10), and (1b) and (6); downstep within a word would here have a different realisation from downstep between words. The second is that this downstep is not present when there has been downstep, or a downdrift of high tones, within the previous word, as a comparison of the two examples in (11) shows.

(11)



The third is that upstep would have to be recognised, as example (12) illustrates; the first three words all begin with a high tone.

(12)



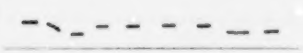
11

6 Marked constituents

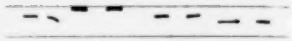
The constituent to which the nominative suffix or one of the subject pgn morphemes is suffixed is here called the marked constituent.

Four possible clauses are given in (14), using just the four lexical items quoted in (13). The clauses all relate to the fact that Sanda cooked the fish yesterday. The favourite sequence of constituents is SOV. ʔútɛ̀ is a member of a small system of temporals which behave alike.

(13) ʔútɛ̀ yesterday
sá^{n}dá Sanda
só^{m}bá fish
t^{h}í mé cook

(14a) 

ʔútɛ̀sà sá^{n}dá só^{m}bá t^{h}í:mé

(14b) 

ʔútɛ̀ sá^{n}dá: só^{m}bá t^{h}í:mé

(14c)

ʔútɛ̀ sá^{n}dá só^{m}básà t^{h}í:mé

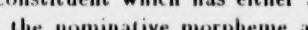
12

(14d)

ʔùtɛ̀ sáⁿdá sóᵐbá tʰí:mèsà

Any constituent which has either a suffixed subject pgn morpheme or the nominative morpheme always has the highest high pitch, irrespective of whether it is an NP, a verb or a temporal. Any NP preceding the marked constituent also has the highest high pitch. The high tone of a temporal preceding the marked constituent has a pitch lower than the highest high. An unmarked verb never appears before the first marked constituent in the clause.

I label by numbers the different pitch levels on which the first high tone in words is realised, using ¹ for the highest. For example, clause (14b) would be transcribed as (15).

(14b) 

ʔùtɛ̀ sáⁿdá: sóᵐbá tʰí:mé

(15) ²ʔùtɛ̀ ¹sáⁿda: ²sóᵐbá ³tʰí:me

The pitch realisation of the tones in the examples in (14) can be accounted for by allocating to each constituent an underlying tone level and by stating two rules. The underlying tone level for NPs is 2 and the underlying tone level for temporals is 3. The first rule states that the marked constituent takes level 1 and any constituent preceding it is raised by one level. The second rule states that a downward skipping of levels, that is from 1 to 3, is eliminated by raising the level of the 3 to a level 2. So, for example, the derivation of (14b) and (14c) is given in (16) and (17).

(16)

	ʔútè o	sá^{n}dá	só^{m}bá	t^{h}í:mé	
	Temp	Subj	Obj	Verb	
Underlying	3	2	2	3	
Mark subject:	-	á:	-	-	(Nominative)
Rule 1	2	1	-	-	
Rule 2	-	-	-	-	
Output (14b)	^{2}ʔútè o	^{1}sá^{n}dá:	^{2}só^{m}bá	^{3}t^{h}í:mé	

yesterday Sanda cooked the fish

(17)

	ʔútè o	sá^{n}dá	só^{m}bá	t^{h}í:mé	
	Temp	Subj	Obj	Verb	
Underlying	3	2	2	3	
Mark object	-	-	sà	-	(3fSg subject)
Rule 1	2	1	1	-	
Rule 2	-	-	-	2	
Output (14c)	^{2}ʔútè o	^{1}sá^{n}dá	^{1}só^{m}básà	^{2}t^{h}í:mé	

yesterday Sanda cooked the fish

It would seem useful to assume that there are two types of structure, syntactic structure and discourse structure. The syntactic structure of all of the sentences in (14) is basically identical. The discourse structure decides which constituent is to be marked and this and the syntactic structure determine whether the nominative morpheme or the subject pgn suffix is chosen. The marked constituent is raised to the highest tone level; I shall refer to the meaning which is associated with a marked constituent as an information point.[3]

A syntactic clause does not have to have an information point.

[3]If the marked constituent were always an information point then a case could be made for treating this as a syntactic phenomenon. But in one instance in the corpus I have transcribed, the marked constituent is not raised to the highest tone level. Lanki is being reproached for his failure to look after his senile mother and at one point he says:

In practice, however, most clauses will have at least one information point. It is possible for a clause to have more than one marked element, as example (18) shows; both ɬáːʔ̀ and bàʔáwàsísṍːsáː are information points.

(18) ^{1}ɓóʔ̀ ^{2}ʔàː ^{1}ɬáːʔ̀ ^{2}kʰàribíʃàn̄ː ^{1}bàʔáwàsísṍːsáː

ɓóʔ̀	pu	ʔà	ˀ	ɬáː	ʔà	kʰàribíʃà	n̄ː	
already	&	3Pl	NOM	good	3Pl	welcome	3Pl	
bàʔáwàsísṍː		sò	á					
the elders		3Pl	NOM					

And the elders welcomed them well

In (18), ɓóʔ̀ ʔàː ɬáːʔ̀ kʰàribíʃàn̄ː forms one unit of information and bàʔáwàsísṍːsáː a second unit of information. Rules of tone level apply within an information unit.

---

^{2}sə̀sà

sə̄ sà

now 3fSg

now she

He wants to stave off the attack and keep the floor, but is still formulating what he is going to say. Inasmuch as the use of the suffixed subject has committed him to a particular subject, (and his audience will expect a statement to follow), he does have some idea of what is coming, and of who the subject of the clause will be, but he has no idea as to what will be the main information point. He may conveniently pause in the hope that the expectation of an assertion and a verb will deter a further onslaught. This example shows why syntactic phenomena should be kept separate from the question of how the information in a clause is organised.

7 The narrative clause

Clauses which use the basic clause structure may also show the conjunction pu, as has occurred in (18). The pu is always suffixed with the subject pgn morpheme, and the resulting word, which is referred to as the narrative conjunction, always has a high tone[4] The forms in (19) result, where it is seen that when the following subject pgn morpheme has an initial consonant, there is no segmental trace of pu. These narrative conjunctions appear at or near the beginning of the clause.

(19) Narrative conjunction

1Sg	sí:
2Sg	pí:
3mSg	ká or pá:
3fSg	sá:
1Pl	pó:
2Pl	pé:
3Pl	ʔá:

These have an underlying tone level 3, but they do not always submit to raising before a level 1 in the same clause; I have not been able to determine any reason for this variation and as yet I consider it to be free variation.

The narrative conjunction is a marked constituent, but is is never

[4] I did not record pu in field work and take it from ten Raa's work; I do not know its tone. In order to account for the high tone on the narrative conjunction, perhaps that conjunction also contains a high tone as an allomorph of the nominative morpheme, as analysed in examples in the text, but I have no evidence to support this conjecture.

chosen as an information point. As noted earlier, within one clause any number of marked constituents can in principle occur, but if the verb is marked, no other constituent may be marked. If the verb in a clause with a narrative conjunction is chosen as the information point, then it is raised to level 1 without being marked, and, in the examples I have, immediately follows the narrative conjunction

(20) ^{3}ká ^{1}ɓàtá ^{2}lá:ʔè

pu à ɓàtá lá:ʔè

& 3mSg NOM be satisfied hare

and the hare had had enough

8 The copular clause

The copular clause consists of two noun phrases with no copula.

(21) $NP_1 + NP_2$

One NP will usually be an information point and as both are coordinate within the clause, both usually appear on tone level 1.

(22) ^{1}tsí ^{1}lá:sì

tsí lá: sì

1Sg good 1Sg

I'm well

A sequence such as that in (22) could also be taken as two coordinate constituents of an NP; when this construction is used as a copula clause, it is most usual for the declarative marker gâ to be used followed by ʔā, used as a 3Sg pgn form, which agrees with the whole clause and which asserts its status as a clause.

Under certain conditions, not detailed here, nominals take a pgn suffix which indicates their person, number and gender, and I refer to these as nominal pgn morphemes. The final sì in (22) is such a morpheme. These nominal pgn morphemes form a different series from the subject pgn morphemes; the nominal pgn series with a low tone is listed in (23).

(23) Nominal pgn morphemes, low toned

1Sg	sì
2Sg	pò
3mSg	Ø/m̀/ẁ/è
3fSg	sù
1Pl	sǔ:
2Pl	sǐ:
3Pl	sò

The copular clause forms the base for other clause types, including the irrealis and the -sí clause.

9 The irrealis clause

One use of the irrealis clause is as a future tense; the future will be used in this section. At first glance, a future clause looks similar to a basic clause, in that the favourite sequence of constituents is SOV.

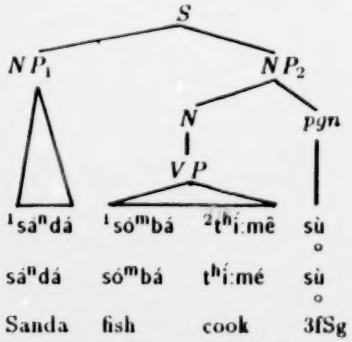
(24) ^{1}sá^{n}dá ^{1}só^{m}básà ^{2}t^{h}í:mêsù

Sanda'll cook the fish

But there are differences. Although it has not been illustrated above, the basic clause allows variation in word order; less is possible with the future. The pgn suffix of the future always appears on the verb, and it may not appear anywhere else. The pgn suffix

on the basic clause belongs to that suffixed subject series stated in (7), that in the future belongs to the nominal series stated in (23). In the basic clause, a declarative morpheme gâ can appear on any constituent, which will then be the marked constituent, and the gâ will be followed by the pgn of the suffixed subject series or by the nominative morpheme. In the future, the declarative morpheme can appear on the subject, where it will be followed by a pgn of the nominal series, agreeing with the subject, and it may follow the verb, in which case it also follows the nominal pgn which is suffixed to the verb, and gâ itself has the suffix ʔà̰, used as described in the previous section. gâ cannot follow the object. The fact that it cannot follow the object seems to indicate that the sequence object and verb is itself a clause constituent in the future, and the use of the nominal series of pgn suffixes with it seems to show that the underlying structure is that of a copular clause, as is shown in (25).

(25)



'Sanda'll cook the fish'

In such a structure, both the NP_1 and the NP_2 would be expected to have the same tone level. However, when there is no object in the VP which is dominated by NP_2, the NP_1 can be made an information point by using the system of tone levels, as can be done in the basic clause. The examples in (26) compare basic and future clauses.

(26)	¹gélé ¹máⁿ̀:	¹géié ¹má?à:
	Gele will be tired	Gele was tired
	¹gélé ²máⁿ̀:	¹gélá: ²má?̰
	It's Gele who'll be tired	It's Gele who was tired

But if there is an overt subject, and an overt object present in the VP, this use of tone levels to make an information point is not possible. The reason is clearly one of interpretation strategy: to have the subject NP one tone level higher than the following NP which is the object of the verb, would produce a tonal relationship between them which would be interpreted as two NPs in an associative construction.

10 Clauses with sí

sí can be suffixed to both noun and verb stems. It is followed by a nominal pgn suffix and it can be taken that a form which has this sí is a nominal form. Its range of translation equivalents can be seen in (27).

(27)	mátósísì	'I've a gourd'
	t^{h}ímésísì	'I can cook' (imperfective verb stem)
	t^{h}ímésísì	'I managed to cook it' (perfective verb stem)

Although the translations in (27) have been by English verbal clauses it seems that each of the Sandawe words, as a nominal, is the NP_2 of a copular clause.

The clause in (28) has the structure of a copular clause, the NP_2 consists of ¹só^{m}bá ²t^{h}ímésísù.[5]

[5]This form is usually heard as t^{h}ímésúsù, but the sí is retained in the text for

(28) ¹sá^{n}dá ¹só^{m}bá ²t^{h}ímésísù

Sanda is a person who knows how to cook fish

But there is also the possibility of the clause in (29), which is much more likely to occur.

(29) ¹sá^{n}dá ¹só^{m}bá ¹t^{h}ímésísù

Sanda knows how to cook fish

In order to distinguish between a copular clause and a more verbal clause, Sandawe has innovated a clause type by allocating the verb also to the same level as the object. As an NP with sí is a very common form used as a modifier, the innovation of this new clause type serves as a clear indicator that the whole functions as a clause. In example (30), the last two words are an NP, 'the man who has taken Ignatia'; the pitch relationship between the two constituents is one cue to its status as an NP. Example (31) is a clause; the verb appears on tone level 1.

(30)

¹ʔèmésé: ¹kó:sè ¹ŋ̀ɲà:sà ²síésúsɛ̀:

ʔèmésé: kó:sè ŋ̀ɲà:sà síé sú sí è

man exist Ignatia take 3fSg sí 3mSg specific
somebody has married Ignatia

(31) ¹ʗā: ¹hèwé ¹mànàsísì

ʗā: hèwé mànà sí sì

place specific that know sí 1Sg
I know that place

clarity

11 History

An earlier study, (Elderkin 1986), using internal reconstruction and comparison with Nama, suggested that it seems likely that the origin of the difference of tone level between an NP and a verb is to be found in the loss of a suffix final to the NP. The use of tone level 1 on a marked item, one used as an information point, seems to be attributable variously to the loss of such a suffix, to the low tone on the suffixed subject pgn series and also to the possibility that an information point intrinsically carries a raised tone to give it the prominence it requires; examples (20) and (26) suggest this. Once established in the language, the system has been extended beyond its historical limits in the adaptation of what are historically copular clauses to a more verbal nature, but only to the extent that no conflict with preexisting structures in the language is created.

The decription of Nama given in Haacke[6] 1976 shows some forceful parallels to these phenomena of Sandawe. Radical lexical formatives, that is, those which are not compounds, have one of six tonemes. Each toneme had two alloforms which Haacke refers to as basic and perturbed. The perturbed profile, as well as being distinguished by a different pitch pattern from the basic profile, is also lower in pitch. Haacke shows that within a phrase, whether NP or VP, the first lexical item has the basic profile and subsequent lexical items have the perturbed profile. In the VP in Nama and Sandawe the NP precedes the V. So in Nama, the lexical item in that NP has the basic profile and the lexical item in the V has the perturbed profile. This corresponds well to the underlying level 2 on the NP and the underlying level 3 on the V in Sandawe. In Nama, the verb can be marked, in the sense used above, but with a greater number of morpheme classes than in Sandawe. When so marked, it takes the basic profile; a marked verb in Sandawe takes tone level 1. In the as-

[6] I acknowledge with gratitude the kindness of W. H. G. Haacke in allowing me sight of his theses, in the interests of consistency, I interpret his data in conformity with the description of Sandawe which I have given here, and I alone should be brought to task for any infelicities and inaccuracies which this interpretation brings.

sociative construction, the basic profile on the first noun is followed by the perturbed profile on the head noun; Sandawe has the head noun one tone level below that of the first noun.

I have referred to NPs in Sandawe both as clause constituents and as phrase constituents. In Nama within an NP as such a constituent, more than one basic profile may occur. Where there is thus more than one basic profile, each basic profile is the initial lexical item of an NP coordinated within that constituent. When within such an NP a modifier precedes the head, the expected sequence of tone profiles, basic followed by perturbed, is the rule. So it seems that the Sandawe tone pattern in example (4), which was treated above as an exceptional pattern, is historically that of an NP. The general rule in Sandawe that words within an NP share the same tonal level, derives from the time when each such word constituted an NP in its own right. I do not think that the structure of Sandawe is such as to allow this as a synchronic interpretation, although in Nama it is possible.

In short, the relation in Nama between a basic profile and the following perturbed profile is comparable to the relationship between a word on underlying tone level 2 and the following word on an underlying tone level 3 in Sandawe. There are several places where the structure of Sandawe and the structure of the Central Khoisan languages, of which Nama is one, correspond. It seems that the way in which they use tone in clause structure is one such feature.

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